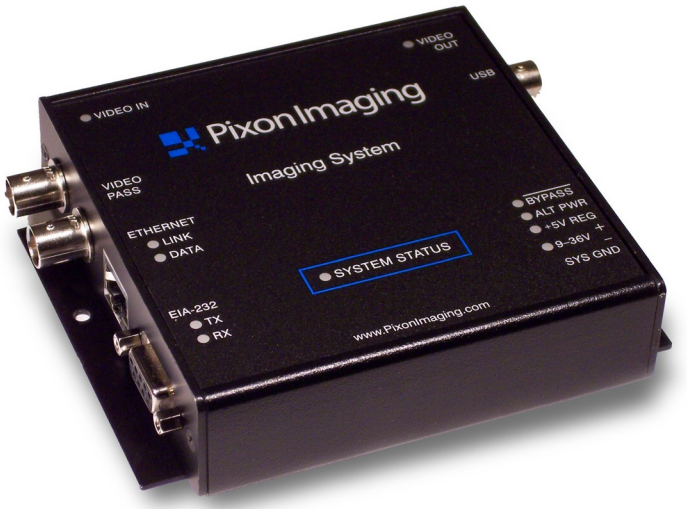
Discovery 60
Imaging Systems

Product Data Sheet

Breakthrough imaging technology in a compact, rugged, package



The Discovery 60 employs multi-core DSP processor and an FPGA to provide a powerful platform capable of a wide range of real-time video image- processing functions, along with an ARM9 general- purpose microprocessor running embedded Linux for robust user-interface, control, and peripheral implementations.

When combined with applications firmware from Pixon Imaging's Discovery Algorithm Suite, the Discovery 60 provides turn-key video image- processing solutions for systems integrators in military, homeland security, surveillance, scientific, and other high-end imaging applications.

These compact units can be used on a bench or surface-mounted using the optional mounting plate, and accept a wide range of power-supply voltages.

Features and Specifications

Video inputs and outputs	
Functions	• VIDEO IN — Video to be processed (from camera or other source). • VIDEO OUT — Video output (to monitor, analytics application, or DVR). Normally this is processed video, unless one of the "bypass" modes is selected. • VIDEO PASS — A buffered duplicate (pass-through) of the input video signal.
Connector type	BNC jacks
Video standards	NTSC or PAL (Input format is automatically detected. Output format follows input.)
Video signal format	Composite (CVBS or RS-170), 1 V p-p, 75 ohms
Fail-safe video bypass	Relay contacts connect video input to video output if no power is available or if processor has detected a failure state.

General-purpose	ARM9
Image processing	DSP
Supervisory	MSP430

Communications and control

Serial data interface

Protocol	RS-232 compatible (3-wire)
Connector	DE-9 female

Ethernet

Standard	10/100BASE-T
Connector	8P8C modular jack ("RJ45" jack)

USB

Standard	USB 2.0 (1.1 compatible), device mode only
Connector	Mini-B USB jack

PX Bus

Standard	Pixon Imaging proprietary peripheral-device expansion bus
Functions	Interfaces to future add-on devices for PTZ control, sensor inputs, relay outputs, and other applications
Connector	4P4C modular jack ("RJ22" jack)

Video signal switching

Transparent mode	This is a software-controlled (API command) mode that sets all image-processing parameters to "null" values. Video still passes through the entire analog and digital signal path (ADC, DSP, and DAC), but the video data are not mathematically altered.
Bypass	The video signal-processor is bypassed by a solid-state switch, effectively changing VIDEO OUT into an additional VIDEO PASS output. This function can be invoked via an API command or by grounding an external control line. Certain system faults also can invoke this mode. The VIDEO PASS output remains available.
Fail Safe	A power failure, a massive system fault, or a watchdog failure invokes this bypass mode. Normally-closed relay contacts connect VIDEO IN directly to VIDEO OUT. The VIDEO PASS (video loop-through) signal is not available. Also available as an API command. The VIDEO PASS output is not available.

Power-supply Options

CAUTION: Except as noted, only one power-supply option can be used at a time — unused power inputs must be left open.

+5 VDC regulated

Voltage	+4.5 to +6.0 VDC
Load regulation	±5.0%
Ripple and noise	50 mV p-p
Transient response	2.0 ms for 50% load change
Line regulation	±5.0%
Current	750 mA

+7.5 to +36 VDC unregulated

Voltage	+9 to +36 VDC	
Load regulation	input must not drop below +9 VDC	
Ripple and noise	1.0% of input voltage level, peak-to-peak	
Current	**Discovery 40**	**Discovery 60**
	100 to 400 mA	130 to 650 mA

Alternate power

An alternative power input that allows the active-bypass and loop-through amplifiers to maintain operation if the main power source fails.

Voltage	+3.5 to +9.5 VDC
Current	75 mA maximum
Noise	5% of input voltage level, peak-to-peak (assumes some visible noise effects)

Environmental

Ambient temperature range, operating	0 to +70 ºC
Ambient temperature range, storage	–60 to +85 ºC
Humidity	3% – 90%, non-condensing
Altitude	4,500 m

Dimensions

H x W x D (overall, with surface-mount brackets)	30 x 124 x 106.0 mm
Weight (with surface-mount brackets)	375 g

Software

Region of interest - Selects region of video to be processed

Brightness control - Dynamic range control for adjusting the balance between dark and light areas

Power contrast - Sharpens features in low contrast areas and increases the difference between the light and dark portions for each feature

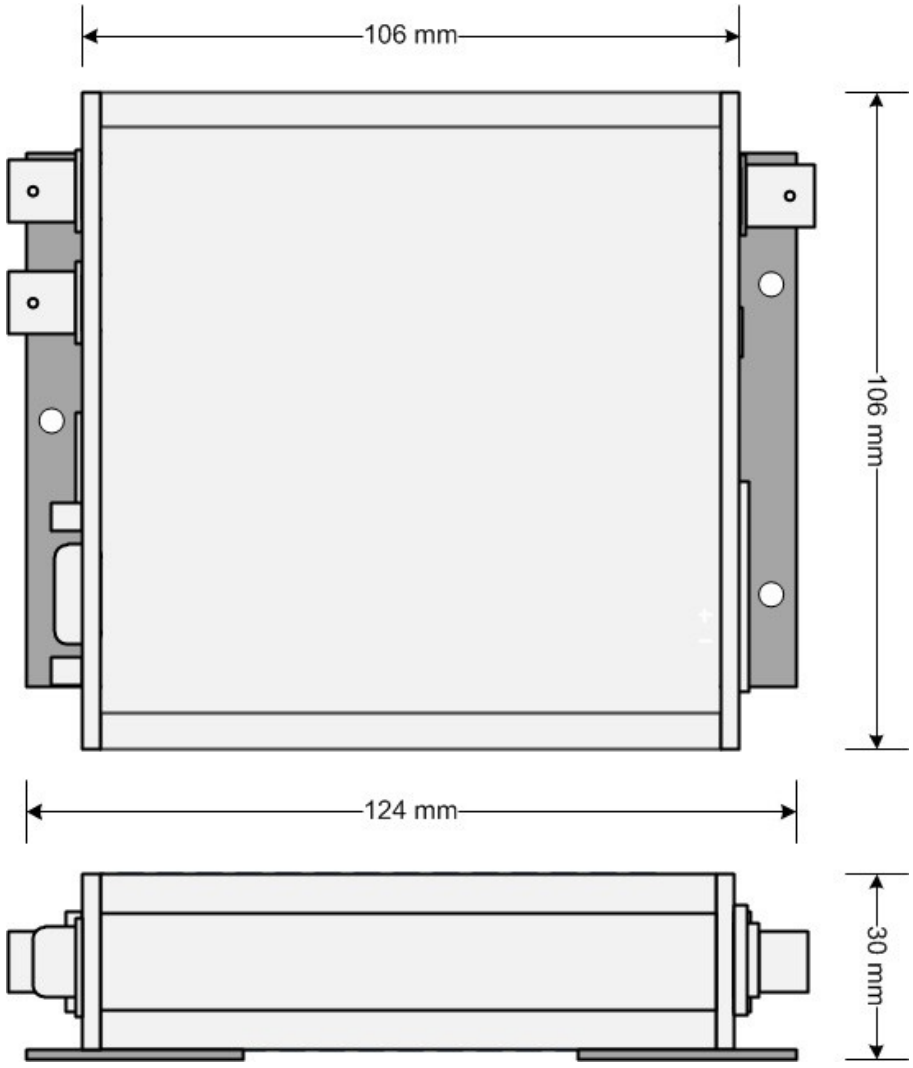
Dehazing - Color recovery and haze (rain, fog, smoke, dust, murky water) removal

Noise reduction - Removes noise by frame averaging.

Motion adaptive noise reduction - Removes noise in stationaryfeatures and leaves moving features unprocessed so they don't disappear

Gamma correction - Controls brightness, similar to the brightness function on a TV or computer monitor

Mechanical drawing



Shown with surface-mount brackets installed.

Drawing not to scale.

Pixon Imaging

For more information

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